

## MEMORANDUM

TO: Paul E. Foster, P.E.

THROUGH: Tammy M. Henry, P.E.

FROM: Shaikh A. Tayeb, P.E.

**SUBJECT: Title V Permit Renewal; Proposed Permit: AQM-003/00111-Renewal 2**  
 Delaware Solid Waste Authority (DSWA)-Cherry Island Landfill

DATE: May 7, 2012

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*This memorandum (report) summarizes the justification of the attached proposed permit. The attached permit is a follow up of the previously issued draft\proposed permit dated 3/11/12. DAQ advertised DSWA's application and the draft\proposed permit for 30 days for public review and comments. DAQ also provided the draft\proposed permit to EPA region III ("EPA") for review and comments. Because DSWA commented on several permit conditions from the draft\proposed permit, the Department will issue the attached proposed permit to DSWA and provide it to EPA for review for another 45 days.*

*The Reconciliation Table on pages 1 and 2 includes DSWA's comments on the draft\proposed permit and DAQ responses.*

*This report has recommendations on page 5.*

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### BACKGROUND

DSWA owns and operates Cherry Island Landfill (CIL). CIL is located in Wilmington, Delaware. DAQ advertised CIL's Title V renewal 2 application and the draft\proposed permit on 3/11/12 for thirty (30) days. DAQ also provided copies of the draft\proposed permit and the technical memorandum to EPA for review and comments for forty-five (45) days. In accordance with the provisions of EPA's operating permit program promulgated in 40 CFR Part 70, the states of Maryland, New Jersey and Pennsylvania were notified about the permit renewal. DAQ received the following comments:

- From EPA: One telephone inquiry (See Note on page 4)
- From surrounding states: None
- From DSWA: Six comments. (See Reconciliation Table below)

Reconciliation Table: DSWA comments on draft\proposed permit and DAQ responses.

Item No.	Permit Condition/Comment Reference	DSWA Comments	DAQ Responses
1	Condition 3-Table 1 (a) (1)(vii)	<p>This condition requires a Method 22 observation within first 15 days of passive flare installation at a given location. This condition was removed from AQM-003/00111-Renewal 1(Rev. 2). DSWA requests the removal of Method 22 from AQM-003/00111-Renewal 2.</p> <p>This requirement should be removed because passive flares never show any visible emissions. This is because the</p>	<p>This condition has been revised to state the following:</p> <p>In addition to that required by Condition 3(b)(1)(ii) of this permit, the owner/operator shall conduct a daily visible emissions observation at least for ten (10) minutes when landfill is in operation.</p> <p>The revised condition can be found on page 17</p>

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Item No.	Permit Condition/Comment Reference	DSWA Comments	DAQ Responses
	Condition 3-Table 1	<p>flares are combusting a passively vented gas and any visible emissions would come from solids combustion. In addition, the procedure is a burden in that it is time consuming task.</p> <p>Instead, in accordance with our current permit, DSWA performs a daily observation for 5 minutes which is sufficient to confirm that the flare is operating properly.</p> <p>DSWA is permitted to use up to 12 passive flares at CIL. In 2011 there were approximately 30 passive flare start-ups. Performing this number of Method 22 observations is a substantial time commitment that will not yield any environmental benefit.</p>	<p>"Instead, in accordance with our current permit, DSWA performs a daily observation for 5 minutes which is sufficient to confirm that the flare is operating properly.", as per DSWA comment on passive flare. Note that the current permit does not have such requirement.</p>
2	(b)(1)(i)(E)(1)	<p>This condition specifies a maximum hourly sulfur oxide (SO<sub>x</sub>) emission rate of 19.7 lbs/hr for each flare. This is a substantial drop from the previously permitted 86.1 lbs/hr SO<sub>x</sub>. Although the H<sub>2</sub>S content of gas dropped since the 86.1 lbs/hr limit was permitted, 19.7 lbs/hr represents an unreasonable restriction. 19.7 lbs/hr would be exceeded at site H<sub>2</sub>S concentration of 500 ppm. In the permit application DSWA requested 51.56 lbs/hr, which is based on 1300 ppm H<sub>2</sub>S (the 5-year maximum concentration). Exhibit AQM-1001K from the permit application has been attached for your reference. DSWA is concerned that we cannot maintain compliance with such a low number for duration of permit. We request that the limit be raised to our permit request of 51.56 lbs/hr which is lower than our previous permitted limit.</p>	<p>This condition remains in the attached permit. (Page 19)</p> <p>The short-term SO<sub>x</sub> limitation is based on site-specific data. It is based on the actual H<sub>2</sub>S concentration in LFG found in last 3 years.</p> <p>As explained by Appendix A (Item 6, Table 2) of DAQ letter dated 3/9/12 to DSWA, the current lbs/hr limit is based on 500 ppm H<sub>2</sub>S concentration in landfill gas (LFG). The 500 ppm concentration is above the maximum concentration found in last 3 years (2011-2009), 490 ppm.</p> <p>Note that DAQ agrees to remove the requirements for operation of an H<sub>2</sub>S pretreatment system from the site. This decision is based on the fact that the facility consistently dropped the H<sub>2</sub>S content of LFG in the past.</p>
3	(c)(1)(x)(C)(5)	<p>This condition specifies the information that should be contained in the semiannual report. Item 5, which refers to surface emission monitoring, incorrectly states the frequency as monthly. The correct frequency is quarterly.</p>	<p>The quarterly frequency of surface emission monitoring is identified by Condition 3-Table 1(c)(1)(vi)(C), correctly. (Page 24)</p> <p>The last sentence of Condition 3-Table 1(c)(1)(x)(C)(5) has been</p>

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Item No.	Permit Condition/Comment Reference	DSWA Comments	DAQ Responses
	Condition 3-Table 1		revised to replace 'previous month' by 'previous quarter'. (Page 25)
4	(c)(1)(vii)(I)	<p>This condition pertains to monthly and quarterly H<sub>2</sub>S sampling. Monthly testing may be performed using a "dräger tube". Dräger is a brand name, therefore DSWA requests the wording be changed to say "dräger tube (or equivalent)".</p> <p>With respect to the quarterly testing, the draft permit states, "the owner or operator shall take every measure to complete a quarterly test, and provide time for a repeat test within that quarter, if necessary." DSWA objects to the use of the word "every". It is unclear what every measure would include. DSWA requests that the Department provide clarification or remove the word "every" from this condition.</p>	<p>The word "dräger tube" has been revised to "dräger tube (or equivalent)".</p> <p>The word "every" has been deleted from the permit condition as requested. (Page 27)</p>
5	(f)(2)(v)(B)	<p>This condition requires a perimeter H<sub>2</sub>S survey if the H<sub>2</sub>S concentration in landfill gas exceeds 450 ppm in two consecutive quarters. This is a very conservative concentration based on the results of DSWA's modeling and our discussions with the Department. DSWA requests that the perimeter monitoring be required only after the average of four consecutive quarters exceeds 750 ppm H<sub>2</sub>S.</p>	<p>This condition remains in the attached proposed permit. (Page 41)</p> <p>The proposed limit is based on H<sub>2</sub>S concentration (in LFG) found in last 3 years (2011-2009) and the dispersion modeling results submitted by DSWA.</p> <p>Note that as per the modeling results submitted by DSWA, at 500 ppm, the maximum off-site modeled concentration exceeds the ambient air quality standard for 3-minute (short-term) averaging period.</p>
6	(f)(2)(x)(B)	<p>This condition requires DSWA to research and implement H<sub>2</sub>S generation reduction strategies and to submit an annual report summarizing our findings. DSWA has invested considerable time and effort into reducing the H<sub>2</sub>S generation and our current strategies have effectively reduced the H<sub>2</sub>S concentration of the landfill gas. DSWA will continue to review special waste requests and cover material changes.</p>	<p>This condition remains in the attached proposed permit. (Page 40)</p> <p>The Department agrees that DSWA has been successful in lowering H<sub>2</sub>S concentration in landfill gas through the use of wallboard segregation and other "front-end" strategies. H<sub>2</sub>S concentration in landfill gas has gone from over</p>

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Item No.	Permit Condition/Comment Reference Condition 3-Table 1	DSWA Comments	DAQ Responses
		We do not anticipate the implementation of additional new strategies so the submission of an annual report seems unnecessary. We request the removal of this requirement.	1900 ppm in 2004 to less than 900 ppm in 2006, less than 600 ppm in 2008 and less than 500 ppm since the beginning of 2009. All these reductions were done primarily by reducing H <sub>2</sub> S generation with controls on materials landfilled and used as cover since the H <sub>2</sub> S removal system installed at CIL never worked properly and now has been removed. However, there is still improvement needed. This is a reminder that Regulation 1144, Section 5.3 sets a limit of 170 ppm total sulfur in landfill gas used for power generation unless a higher limit is approved on a case by case basis. The Department feels that the DSWA is in the best position, with their industry contacts and attendance at landfill conferences, to monitor practices taken at other landfills and apply cost effective strategies to further reduce H <sub>2</sub> S generation at CIL.

Note

DAQ did not receive any written comments from EPA. However, on 3/21/12, EPA had a telephone inquiry. EPA asked whether DAQ was considering any greenhouse gases (GHGs) in the renewal 2.

Comments: DAQ is aware of the fact that DSWA reports GHGs to EPA under the new reporting rule. I also collected copies of 2010 and 2011 GHG reports from the facility. Based on my discussions with the DAQ management, the Department does not require the facility to submit a separate GHG report at this time. Therefore, the attached proposed permit has excluded such requirement.

Other changes

The existing Title V permit does not include passive flare emissions as part of *facility wide emissions*. CIL submits passive flare emissions to our Emission Inventory Group as part of Emission Inventory Report. Although each passive flare shall be used for temporary installation and operation only as an odor control device (See operational Limitations form passive flares on Page 17), the facility uses these units regularly with significant hours and days as shown below:

Calendar Year	Days	Hours
2011	352	23,424
2010	316	24,960
2009	315	16,800

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I have discussed this with DSWA's site engineer Angela Marconi and emphasized that the emissions from these units must be counted as part of facility wide emissions because they are fuel burning equipment and being used regularly. On 5/1/12, Ms. Marconi sent me an email stating that 'DSWA is amenable to this revision'.

I shared this information with DAQ management and revised Condition 3-Table 1(f)(ii) as shown below:

The facility's rolling 12-month emission limitations are based on two low-NOx enclosed flares and all permitted passive flares as shown below:

NO<sub>x</sub>=23.9 tons  
CO=57.4 tons  
PM=16 tons  
NMOC=0.61 tons  
SO<sub>x</sub>=77 tons  
HCl=1.11 tons

The existing condition states the following:

The facility's emission limitations are based on enclosed flare emissions as outlined by Condition 3-Table 1(b)(1)(ii). This condition shows tpy emission limitations of enclosed flares.

The revised condition can be found on Page 39 of the proposed permit.

**CONCLUSION/RECOMMENDATIONS**

- The "Proposed" Permit Renewal addresses DSWA's comments.
- It is recommended that the attached "Proposed" Permit Renewal be reviewed and submitted by e-mail to the EPA Region III Office. EPA has forty-five (45) days to either approve or deny the "Proposed" Permit Renewal.

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pc: Dover File  
EPA Region III (electronic version)